Race to the Bottom: Information Superiority and the Human Soldier in the NBIC Era

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Outline of Presentation to CCRTS Symposium (2004)

- Basic Research Question and Methodology
- Core Concepts: NBIC and NCW
- Applications (examples)
- Preliminary Findings
- Key Public Policy Issues and Controversies

Basic Research Question(s)

- Motivating Interest: the human soldier at the center of advanced bio/molecular technologies
  - What does NBIC/NCW mean for the individual soldier?
  - How can advanced technologies be used to enhance soldier performance and information dominance?
  - Are these uses ethical?
  - How do these new technologies "fit" within broader social discourses on advanced technologies?
    - On the War on Terrorism?

Core Concepts: NBIC and NCW

- NBIC = convergence of
  - Nanotechnology
  - Biotechnology
  - Cognitive Science
  - Information Technology
- Depends upon "convergence at the nanoscale" – ie, minaturisation and efficient use of hybrid materials

Network Centric Warfare

- *An information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased surviability, and a degree of self-synchonization.*

NBIC and NCW Combined

- Digitised Battlefield
- Collective Intelligence
  - Combat unit as a form of distributed network
- HPE via integration of advanced bio/molecular technologies
- "Cyborg Soldier"
- Individual platforms fused into "powerful joint war-fighting entity" (S. Callahan)

Applications (Examples)

- Hybrid materials (nanotechnology)
    - Self-repairing body armor
- Functional foods (biotech)
- Combat identification (biological markers)
- Magnetic resonance/brain to overcome sleep deprivation (cognitive)
- GPS technology on helmuts – possibly in the brain? (cognitive + info tech)
- Gene therapy and gene doping? (biotech)

Preliminary Findings

- 3 Dominant Narratives
  - Functional Narrative
  - Human Performance Enhancment (HPE)
  - Oppositional Narrative

Functional Narrative

- "Bells and Whistles"
- Popular culture references
  - (esp. The Matrix!)
- Foundation for Future Warfare
  - "instant armor", "knowledge superiority", "smart soldiers"
- Grand Challenges and Political Support
  - Ie, nano as modern version of Space race

Human Performance Enhancement

- Robo-sapiens or Cyborg Soldier
- Human at the center of the technology
  - *Many RMA supporters neglect individual soldiers as beneficiaries of the evolution through information, communication, situational awareness, survivalility, and lethality* (S. Callahan)
- Therapy v. Cure v. Enhancement
- Soldier as the Sentinel of the Trans-human?
- ELSI?
- Demands on Soldier and Effect on C/C structures

Oppositional Narrative

- Links science, technology and military to broader political/oppositional agenda
- "Stepford Soldiers"
- "Orwell's Nightmare"
- X-Files
- Gray Goo, Green Goo, and Gray Governance

Key Policy Issues (1)

- Discourse coalitions key to enrolling public support for major social/political changes
- Military embedded in society – ergo, must be alert to competing discourses (I.e., Rep. Chris Cox recent speech on Moore's *Farenheit 9-11)*
- Policy vocabularies within a 'closed system' do not always translate broadly
- National Security must be constructed via language, in addition to technology, organisations, and human actors

Key Policy Issues (2)

- Stress and Psychology
  - Implications for military recruitment?
  - Implications for debriefing and psychology?
- Eugenics
- Ethics of "performance enhancement"
  - Potential impact on mission success or failure?
  - Information overload and psychological burden
  - Legal implications: *what did the warrior know and when did he know it?*
- Tension between operational secrecy and need to enroll public support

Preliminary Conclusions

- SPE cannot be separated from broader public discussion of advanced technologies

- Winning the War on Terrorism = strategy + technology + human factor + language!

- The human at the center of this technology = choices and ethics?

- Cognitive applications = most likely to generate oppositional narratives